Shattered Glass Studio: A Proposed Community for Coping with Trauma

An Honors Thesis (ADS 471)

by

Eric Sarachman

Thesis Advisor

John Morris

Ball State University
Muncie, Indiana

May 2020

Expected Date of Graduation

May 2020

Abstract

Traumatic experiences are an unavoidable part of life as a human being. These experiences can drastically change the way we see the world, and how we interact with others (Horowitz 193). The inability of the human brain to effectively break down and process traumatic experiences can have a life-long effect on the way an individual sees themself and the world around them (Perryman 82). This can result in a shift in thinking that can lead to profound creative growth. Many renown artists cite childhood trauma as a source of their creative thinking or inspiration for their work (Foregeard 246). Not only can traumatic events serve as inspiration for artistic endeavors, these creative pursuits can actually be a means of recovering from trauma. The execution of a step-by-step process, like glassblowing, can help individuals contextualize traumatic events, establish a narrative of what has happened to them, and effectively process their trauma (Perryman 84). Shattered Glass Studio is a proposed organization to help individuals learn to shape molten glass as a way of gaining a sense of control in their lives and working through traumatic experiences. The following is a design campaign for the proposed Shattered Glass Studio. The culmination of this campaign is a Process Video, available online at the following link.
https://www.youtube.com/channel/UCG8SNL_eNjsAUcjNgSXhFiA.

Acknowledgments

I would like to thank Professor John Morris for advising on this project and giving me the confidence to pursue visual expression.

Thank you to Dr. Jason Powell, Dr. Gary Pavlechko, and Dr. Timothy Berg for showing me how to interpret difficult, conceptual material.

Thank you to Professor Brent Cole for continuing to show me the ways of a true glass artist

Thank you to Professor Lyn Whitesell for believing in this project when I'd nearly lost hope.

Thank you to Summer, Molly, and Dan for putting up with me in the hot shop.

Thank you to Melissa, Pat, and Liam for all the encouragement and inspiration.

Thank you to Amy and Mike for the endless love and support.

Finally, thank you to Dr. James Ruebel for giving the opportunity to study in the Honors College at Ball State University.

Process Analysis Statement: *Shattered Glass Studio - Overview*

There are many steps and many components to consider when one is constructing the framework for a new glass studio. As a Visual Communications (graphic design) student, this project was proposed as solution to the Senior Design Campaign project, completed by all Visual Communications majors, during their final year of study. Over the course of this year, substantial attention was paid to the logo, branding, and products of this emerging establishment. In addition to refining the "tools of the trade" required to properly design everything from a business card to a billboard, I've been lucky enough to become immersed in the craft of glassblowing, to satisfy 3-dimensional art requirements, within the Visual Communications curriculum. The rather extreme nature of shaping molten glass quickly became a necessary balancing force to the hours spent staring at a computer screen required to craft high-quality designs, and graphics, for 2-dimensional pieces.

For this campaign, many hours were spent defining the goal, acquiring information, and shaping glass to produce "Shattered Glass Studio". The main goal of this proposed organization is to help individuals, who have experienced traumatic events, work through and effectively process the events they have experienced. The inspiration behind this goal is something very personal to me. I have been very fortunate throughout my life to not experience extreme trauma on a scale that many others cope with on a daily basis. However, I do believe that everyone has experiences that leave emotional and/or physical scars that can be felt decades down the line. Because of this, I believe it is absolutely essential to find ways of working through long-held pain. This is where a creative spark can save a life.

Commitment to, and mastery of, a specific craft can give an individual a concrete set of actions to take when feelings of uncertainty and hopelessness

dominate one's mental landscape. The ability to focus on a productive, and creative, endeavor can give individuals a much-needed break from intrusive or negative thoughts. This relief can be magnified when the process in question is inherently interesting. This is where I feel glassblowing can be particularly useful.

In my research, I found out that traumatic events are stored in the brain differently than normal memories. Usually an event is broken into parts, each part with a positive or negative connotation. These parts are used to construct a narrative that the brain can understand (Perryman 82). However, traumatic events are stored as a single memory that cannot be broken into parts to be processed. Without a clear narrative, the individual cannot actually make sense of what has happened to them (Perryman 82). Without a way to accurately recall a traumatic event, individuals cannot effectively process what has happened to them and cannot work through, and accept, their trauma (Perryman 84).

Creative acts and art therapy can be used in these cases to increase the window of time trauma survivors can talk about their trauma in an effective way, and not become overwhelmed (Perryman 85). Trauma survivors often have discussing traumatic events since the emotions these discussions can evoke are so intense (Perryman 85). A step-by-step creative process can be a non-threatening way to help individuals put together a narrative that can then be worked through with more traditional methods of talk-therapy (Perryman 81). These creative acts can also serve as a corrective experience for embedded traumatic events, helping individuals lead higher quality lives (Perryman 81).

Design Campaign/Branding - Logo - Images pg. 25, 26

When establishing any brand or organization, a logo is used as a unifying, and tone-setting, element. For the logo of Shattered Glass Studio, I wanted to combine aspects of a traumatic, "life shattering", event with a highly refined, and

beautiful, outcome. To do this, I chose to modify an existing, very traditional, glass form and technique. The form used is called a Veronese and has been produced by Italian master-glassblowers for nearly 1,000 years. This piece is very difficult to create and is made even more difficult when it incorporates the “Reticello” pattern technique. This technique uses many rods of glass called “Canes”. Glass canes look similar to plastic straws, but are completely solid, with a thin strip of colored glass running through the center. These canes are aligned side- by-side and rolled onto the end of a metal blowpipe. The canes are then twisted into a tight spiral and made into a cup. This process is repeated, with one difference. The second cup is twisted the opposite way, heated, and stuffed into the first cup to achieve a “net” pattern with the overlapping canes.

For the Shattered Glass Studio logo, I chose to use the overall form of the Veronese, with one half of the Reticello technique. However, I chose to make the resulting spiral lines resemble cracks running up and down the form. The duality of making a highly refined, and beautiful, form from broken pieces serves as a metaphor for the mission of Shattered Glass Studio (Logo - Horizontal Lockup 25). Even when one feels broken, the cracks can be used as a beautiful element in a highly refined piece. This form is then combined with a serifed typeface, with a relatively large contrast between the thick and thin elements to give the feel of an established brand that has lasted through “thick and thin” times. The resulting logo is meant to be a non-confrontational unit that welcomes and inspires individuals to collect any broken pieces in their lives, melt them down, and shape them into something beautiful, and timeless (Logo - Vertical Lockup 26).

Motion Graphics

One of the main components of this campaign is the creation of video to showcase hot glass being shaped into a form, used to construct a lamp. The

introduction to this video is a Motion Graphic sequence using the logo of Shattered Glass Studio, to introduce the company. To create this Motion Graphic sequence, the existing logo has to be broken into many individual parts. These parts are then each given a specific animation to be completed in a specific amount of time. Eventually, all the pieces complete their individual animations to come together and form the Shattered Glass Studio logo. Multiple parts working together to make a whole can be seen as a reference to an individual glass piece, constructed from many parts, coming together to be completed. This can also be seen as multiple individuals collaborating on one project, to achieve a common goal(video available at: https://www.youtube.com/watch?v=9_kHRVdaokE&t=1s).

Process Video

The Process Video that follows the Motion Graphic sequence is one of the cornerstones of this campaign. Being able to actually see molten glass being shaped is absolutely essential to understanding the process of glassblowing. This video also serves as a way of uniting the pieces Shattered Glass Studio produces with the branding of the company, to send a cohesive message. Since glassblowing is a craft that most people have very little exposure to, this video helps contextualize many of the metaphorical aspects of glassblowing. It also serves as an interesting way of showing the rhythmic, and mesmerizing, nature of the craft.

To construct this video, a team was assembled to create a rather complex piece of glass. Teamwork is an omnipresent element of glassblowing, since the medium requires constant attention. Unlike a painting or a photoshop file, glass is constantly moving and changing shape. Unless it is being directed properly, this movement is usually counter-productive to the desired form. Because of this, one person must be constantly turning the glass piece to prevent any one part from falling off-center, or out of symmetry. The person that is usually turning the piece is

referred to as the “Gaffer”. The Gaffer is in charge of the final appearance of the piece, typically does most of the shaping of the glass, and directs all the other members of the team. The other team members, referred to as the assistants, can then inflate the glass by blowing into the blow pipe, prepare other elements to be added to the piece, or simply shield the Gaffer’s hands and arms from the heat radiating from the piece.

As glass pieces become more complicated and larger in scale, more assistants are required. Either to prepare additional parts, share some of the heavy lifting, or shape parts of the glass the Gaffer can’t reach. The piece shown in this video is not particularly large in scale, but the technique is relatively complicated. As the process lengthens, fatigue sets in, and simply rotating the pipe can seem like an impossible task. Even though the actual weight of the glass may be under ten pounds, it is constantly falling toward the ground, due to gravity and the viscosity of the material, thus, it must be constantly rotated to remain concentric with the blowpipe and symmetrical. Because of the constantly moving material, many glassblowers equate lifting and turning the pipe to trying to pick up a toddler on the end of a broomstick. Even if you manage to get the toddler off the ground, they are going to be squirming and fighting every step of the way. This is when a skilled team of glassblowers really pays off for the Gaffer. The more trust, and ability, the team has, the better they can execute the task at hand and solve problems before they become disasters.

The process being displayed in this video is called a Swedish Overlay. This is a rather difficult, and relatively unconventional, technique that intimidates and amazes many glassblowers. This technique involves the combination of two different bubbles of glass. One, called the “Mother Bubble”, is made of completely clear glass and left with rather thick walls, for stability. The second bubble, called the “Overlay Bubble”, is made with colored glass on the very inside, and coated

with clear glass. The Overlay Bubble is inflated to have fairly thin walls, for easy manipulation and heat absorption.

When both bubbles are set up correctly, the bottom of the Overlay Bubble is heated and stuck onto the bottom of the Mother Bubble, directly in the center, to form a permanent connection between the two bubbles. The Overlay Bubble is then broken free from its original blowpipe so the overlay can be completed. The rest of the Overlay Bubble is then carefully heated, opened slightly, and heated further. Due to the relative thinness of the Overlay Bubble, if it is heated too aggressively or turned in an improper manner, the bubble can collapse, or crumple, and touch the piece in an undesired way. However, if heating and tooling are carried out correctly, the Overlay Bubble can be completely wrapped around the Mother Bubble to coat the thick clear glass with a thin layer of color.

In the case of the piece being created (Trade Show Pieces 2, 28), the Overlay Bubble contains two different colored glasses. Glass is given its color by adding different elements from the periodic table. These elements are usually metals like iron, (used to make green) cobalt, (used to make blue) and even gold (used to make pink). When multiple colored glasses are combined, extreme chemical reactions can occur. These reactions can produce strange textures, patterns, or drastic changes in colors. In this piece, a black glass and a white glass are used to coat the piece.

This particular black glass is made with silver, which is extremely reactive; especially when combine with the specific kind of white glass used in the piece. When these two colors are combined, and placed on the outside of the glass piece, they react with each other, and the gas used to power the reheating furnace. In this case the black is the outermost layer of the piece. After excessive heating, the white glass underneath actually boils through the black glass to produce an “oil spot” texture as well as a change in color from white to yellow, and black to blue and green.

Trade Show - Images pg. 27, 28, 29

The process video shows the creation of one of the Trade Show pieces, or production line of Shattered Glass Studio (Trade Show Pieces 2, 28). The idea behind these pieces is that employees of Shattered Glass Studio would produce a selection of glass pieces to be sold to the public. These pieces would help fund the operation as a whole, as well as community workshops. These workshops would be open to the public and educate participants on the use of art therapy, and pursuit of creative activities, to cope with traumatic events and work through difficult times in life. The other pieces of the first production line from Shattered Glass Studio include a small clear drinking glass, a symbolic cracked glass, a low bowl, and the lamp seen in the process video (Trade Show Pieces 3, 29).

To produce the Trade Show pieces, various processes in glassblowing must be skillfully executed. All of these pieces begin by "gathering" a small amount of glass molten glass on the tip of a hollow metal pipe, called a blowpipe. Glass is completely molten at about 2100 degrees Fahrenheit. At this temperature, only a small amount of glass can be gathered at a time since the consistency of the medium is similar to room temperature honey. Once the glass cools and solidifies slightly, another gather can be taken, over the first one.

Typically, after either the first or second gather, air is blown into the pipe and trapped inside and expands due to the heat of the glass. This creates a bubble, which is the arguably the most basic component of traditional glassblowing. If a glassblower is making a drinking glass, this bubble is elongated, shaped with a tool called the "jacks", and inflated to be long and cylindrical. The "set-up" shape for a low bowl is a squat, "flying-saucer" type shape, known as an oblate spheroid. Once the desired "set-up" shape is achieved, on the blowpipe, the bottom of the vessel is flattened, and prepared to be transferred to a "punti".

The punti is a solid metal rod with a small amount of glass on the end. This

acts as a bridge, of sorts, and is attached to the bottom of the piece. Once the punti is attached, the piece is broken free from the blowpipe at a constriction, known as a "jackline". Glass always breaks at the weakest, or smallest, point. Glassblowers use this to their advantage by intentionally making the smallest point very close to the blowpipe, to keep the majority of the glass from becoming scrap. Cold water is added to this constriction to further weaken and shock the glass, and a small tap on the pipe breaks the vessel free from the initial blowpipe. With luck, and skill, the punti connection is strong enough that the piece only breaks on the blowpipe side and avoids crashing to the ground and becoming a pile of scraps.

After the punti is successfully attached, and the piece is transferred, the glassblower can reheat and shape the opening and upper portion of the vessel. In the case of a drinking glass, the lip of the vessel is pulled out with a pair of glassblowing tweezers. This allows the thick glass at the lip of the vessel to be trimmed away to leave a pleasing, thin lip. The glass is then reheated and opened, using the jacks, to the desired diameter and final, cylindrical form (Trade Show Pieces 3, 29). In the case of a low bowl, the majority of the vessel is reheated and the lip is opened slightly with the jacks. After further reheating a tool known as the parchoffi, or wooden jacks, are used open top half of the vessel quite wide, while pushing the form back toward the base, to achieve a pleasing, and functional, "low bowl" shape (Trade Show Pieces 3, 29).

Finally, the piece is broken free from the punti using another drop of water and the piece is placed in an annealing oven. This is an oven, or kiln, holding a constant temperature between 900 and 950 degrees Fahrenheit, depending on the type of glass used. At this temperature the glass is hot enough to not crack due to temperature changes, but cold enough to retain the desired shape. Once an annealer is full, a program is activated that slowly brings the pieces down to room temperature, without putting too much stress on the material. The thicker the glass

being annealed, the longer this program needs to be.

Typical blown glass pieces, like the ones seen in the Trade Show (Trade Show Pieces 27, 28, 29), can be brought down to room temperature over the course of 12 hours. However, certain solid-glass sculptures can take months to equalize the temperature between the core and the surface of the piece. Much like a burrito in a microwave, glass is heated, and cooled, from the outside, in. If the difference in temperature between the surface and the core of the glass is too great, the stress this causes will result in a shattered piece. For instance, if a glass piece is simply left in a room-temperature environment, after it is broken free from the punti, the piece will shatter due to stress caused by uneven cooling.

This breakage can occur at any point in the glassblowing process, if the piece falls below 1000 degrees Fahrenheit. Because of this, glassblowers must constantly give small amounts of heat to the entire piece, called flashes, to make sure all parts stay above 1000 degrees Fahrenheit, minimum. Every glassblower has lost many pieces to poorly managed temperature, which is part of the reason that successfully making anything out of hot glass is so rewarding. The constant threat of failure is one of the main reasons glassblowing is so inherently engaging. Even if someone wanted to look away from a piece while they are blowing glass, the material won't let them. Glass requires constant attention and absolute respect.

Packaging - Images pg. 30-35

The second component of the Trade Show is the creation of packaging for each of the pieces. The packaging is intended to be simple, clean, non-confrontational and slightly underwhelming, when viewed from the outside alone (Packaging 1, 30). These boxes are designed to then unfold to reveal the piece inside, as well as information about the processing of trauma in the brain, benefits of art therapy, how trauma shapes one's sense of self, and glassblowing processes

used to create the objects (Packaging 2, 31). This contrast between heavy blocks of text on the inside, and minimal elements on the outside alludes to a traumatized individual that may look "normal" on the outside, but has storm, of sorts, on the inside (Packaging 32-35).

The packaging elements are designed to accompany the glass pieces and be part of the display of the pieces themselves. Glass has a unique ability to bend and distort light that can be seen as a metaphor for how individuals may have a skewed sense of reality in wake of tragedy. The glass pieces bend and distort the text inside in interesting ways, while still leaving the information legible enough to read (Packaging 2, 31). This distortion can be amplified in many ways during the hot glass process by intentionally cooling, or marking, the glass. One of the most interesting ways of achieving this distortion is through the use of an "Optic Mold".

The aptly named, Optic Mold, is used to add variety, and visual interest, to the "optics" of a certain glass piece. These molds come in many shapes, sizes, and varieties; however, my personal favorite is a standard optic mold that is shaped like an 18-pointed star. Glass is heated rather extremely and lowered, straight down, into this mold to give the glass 18, pointed, vertical ridges. These ridges bend light in an incredibly interesting way and can be twisted into an even more interesting spiral-pattern by a skilled glassblower. This technique is exemplified in the low bowl, seen in the Trade Show pieces (Trade Show Pieces 27-29).

Guerrilla Marketing Video

An additional component of the marketing for Shattered Glass Studio is the creation of a "Guerrilla Marketing" style video (available online at https://www.youtube.com/watch?v=nR7FjSJ1Qas). This video is intended to be seen in a non-marketing environment and raise awareness about, and interest in, Shattered Glass Studio. To do this, a "found footage horror movie" style video was

created, to display how a traumatic event can shatter an existing form. Thus, an existing glass bowl was shattered by dropping a molten gob of glass into the center of the bowl. This immediately creates such a difference in temperature between parts of the bowl that the piece essentially explodes. While destroying certain things for, no reason, can be fun, the destruction of the bowl shown in this video does serve a greater purpose.

***Worry Stones** - Image pg. 30*

In addition to making interesting content, sharable on social media, breaking a glass bowl in this way is an essential step in the creation of Shattered Glass Studio's "Worry Stones". To keep with the theme of creating something new, beautiful, and useful out of something seemingly broken, the shards created in this video were turned into worry stones to help individuals cope with anxiety or depression caused by traumatic events, or relationships. To do this, the shards were taken to a sandblaster, which is essentially sandpaper in the form of spray paint. The sandblaster is used to smooth all sharp edges and give the shards a frosted texture. These worry stones can be given out to workshop attendees and the general public (Worry Stones 30). Since the stones have a matte texture, as individuals rub them, they will slowly become smooth and polished, to show physical evidence of a task being performed.

***Print Advertisement** - Image pg. 31*

The final piece in the marketing of Shattered Glass Studio is the creation of a Print Advertisement to showcase one of the Trade Show pieces and inspire the public. This poster is intended to serve as a call to action to anyone who feels broken. The glass piece seen in the ad is legitimately broken into hundreds, if not thousands, of pieces, but remains in the recognizable form of a drinking glass. This

is done by performing the exact opposite of a typical annealing process. Instead of putting a finished piece into an annealer to relieve stress and slowly cool down, the finished drinking glass, still roughly 1000 to 1200 degrees Fahrenheit, is dropped into a bucket of room-temperature water. This action shocks, and shatters, the entire piece instantly. However, the hot glass is still slightly expanded, compared to the volume it would be at room-temperature, and instantly contracts, pulling all the shards into one another, keeping the form "intact".

Packaging Body Copy - *Images pg. 32-35*

Clear Cup Body Copy (pg. 32) – ***How Trauma is Processed by the Brain***

Human beings are built to experience and respond to the world we live in. There are behaviors we are born with that help us survive from day to day but, arguably, most of our knowledge comes from experience. Making patterns and generalizations about the world is how we learn to avoid danger and live successful lives. Most of this learning is a result of the brain's ability to construct a cause-and-effect narrative of individual events, either positive or negative, that can be effectively processed by the brain and used to shape future behavior (Perryman 82). However, when a traumatic event is experienced, this method of information processing fails.

Instead of an event being broken into a narrative with positive and negative memories, traumatic memories are stored as single events, with no clear narrative (Perryman 82). This means that the brain cannot effectively process the information that is being received. As a result, the left and right hemispheres of the brain cannot effectively communicate with each other to make sense of what has actually happened (Perryman 84). The interrupted communication between the two hemispheres can lead to inadequate processing of information and negative associations being made with non-threatening stimuli (Perryman 80). Future

contact with these stimuli can produce three main behavioral responses. Depending upon the severity of the response, the individual may have a greatly decreased quality of life.

There are three main behavioral responses that are commonly displayed after an individual has had a traumatic experience (Perryman 82). A fight response is displayed when an individual becomes aggressive towards others or have overreactions to normal stimuli (Perryman 82). A flight response is displayed when an individual completely removes themselves from a situation to avoid conflict (Perryman 82). Lastly, an immobilization response is characterized by the repression of all feelings associated with the event in an attempt to pretend the event didn't happen (Perryman 82). These responses can make coping with traumatic experiences very difficult, but trauma therapy, and art therapy, can be very beneficial in living a fulfilling life after extreme circumstances (Perryman 84).

Crackle Cup Body Copy (pg. 33) – *Benefits of Art Therapy and Glassblowing*

Art therapy and creative acts are becoming increasingly accepted as means of coping with trauma and hardship. Humans have a natural instinct, and need, to express themselves in the world. One way of achieving this is creative processes such as painting or sculpting. Creative processes are inherently gratifying; however, they may also produce results that have physical benefits associated with them. In an article written by Angela Burke, a quote from Florence Nightingale is cited "Variety of form and brilliancy of color in the objects presented to patients are actual means of recovery" (Burke 28). This means that beautiful objects can actually help individuals with trauma experiences recover and cope with their circumstances.

The art of glassblowing may be incredibly beneficial to individuals who have experience with traumatic events or difficult life situations. Glassblowing is a very

engaging artform due to the inherent qualities the medium of hot glass possesses. Glass is completely molten at temperatures above 2100 degrees Fahrenheit. At this temperature, the glass actually emits light (and great amounts of heat). It is also always moving at this temperature. Glass is about the consistency of honey when it is first "gathered" out of the furnace. This means the glassblower must constantly rotate the pipe or the glass will literally fall off the pipe, onto the floor. Because of this, the glassblower must be constantly "present" preventing the material from falling or getting "off-center" causing the piece to lose its symmetric form.

This rotation must also always be kept at a consistent rhythm or some parts of the piece will sag, crumple, or get hotter than other parts when the material is reheated. This constant rhythm is another aspect of the process of glassblowing that keeps an individual completely engaged and "in the moment". Rhythmic acts, like dancing, have been cited as beneficial to individuals attempting to cope with traumatic experiences (Richman 372). There is comfort in the predictability of a steady rhythm.

I believe the fact that glassblowing is an artform that incorporates physical movement, rhythmic motion, possibility of failure, and humans' natural fascination with fire is substantial supporting evidence for the effectiveness glassblowing can have as part of the treatment of individuals who have experienced trauma or lived through extenuating life circumstances.

Spiral Bowl Body Copy (pg. 34) – *How Trauma Affects One's Sense of Self*

One result of the way that the human brain processes information is that most information taken in is actually forgotten. The amount of information the brain processes on a normal day is so large that it becomes trained to filter out "unimportant" information. This results in many neutral life events being forgotten. Consequently, when a traumatic event is experienced, the emotions that

are triggered are so much more intense than ordinary experiences, that the brain deems these events much more important than normal experiences (Horowitz 189). Because of this, negative memories tend to "outweigh" neutral or positive events when one looks at the defining forces in their life. While this can be beneficial in avoiding negative stimuli, in future situations, it can also give an individual a false sense of identity. Since they seem to define themselves by traumatic experiences. This can leave individuals with feelings of incompetence, inferiority, or depersonalization in wake of a life altering traumatic event (Horowitz 193).

This altered sense of personal identity can be extremely detrimental to an individual's inter and intrapersonal relationships and interactions. Our sense of identity is a defining force in how we see and interact with the world. When a traumatic event is experienced, this view of the world (and self) can be destroyed or altered. This shift in perspective can be difficult to come to terms with. It's human nature to resist change, in most cases, and a change in one's self can be hard to accept. However, if this change is fully embraced, an individual can see new solutions to old problems or look at new problems in a more beneficial way (Forgeard 245).

Lamp Body Copy (pg 35) – *Redefining One's Self Through a Creative Process*

The concept of redefining one's self seems like it should be easy. However, there are many aspects of the self that are not consciously controlled. In order to truly redefine one's self, there must be a driving force, motivating an individual to live in a different way. One of the most powerful forces for self-definition, in my opinion, is becoming inspired to create or to fall in love with a specific creative process. The devotion to a creative process can be comforting when one is struggling to find the next step to take in their own life. Experiencing trauma can lead to new ways of looking at and thinking about the world (Forgeard 245).

Learning a new creative process can open up new possibilities for self-expression. The combination of these factors can lead to substantial personal and creative growth that can help individuals redefine themselves in the world after experiencing extreme hardship or traumatic experiences (Forgeard 245).

The term Posttraumatic Growth (PTG) is a self-held believe that the negative experiences in one's life shape the way the individual looks at, and thinks about, the world, which can have positive psychological outcomes (Forgeard 245). Each person's experiences give them a slightly different view of the world than every other person who has ever lived. Extreme or unique life experiences have often been reported, by highly creative people, as reasons for their exceptional creativity (Forgeard 246). Obviously, negative experiences are generally avoided. While I don't believe they should be sought out, I do believe that experiencing hardship or living through difficult situations provides the substantial fuel that is needed for true creativity. When something in life completely shatters, there's no use in mourning the pieces, one just has to take what they can from the experience and shape it into something new.

This is essentially the mission of Shattered Glass Studio. Glass is an incredibly sensitive but also incredibly strong material. Every time glass is touched by or shaped by a tool, some kind of mark is left behind and can be seen in the finished piece. But without the stressful actions needed to shape the glass, the final piece would lack a clearly defined form. The beauty of glass can only be brought out through copious stress and change. There may be marks, or scars, left behind, but the end result is undeniably beautiful. The ability of glass to serve as a metaphor for life and experience can give the individuals that shape glass a different perspective on their own experiences and learn to see their negative aspects of their own lives as necessary steps to get to where they are, or where they want to be.

This object was created using a technique called a Swedish Overlay. This is a relatively unconventional technique, in which one bubble of glass is encapsulated by a second bubble of glass, which has a layer of colored glass on the inside. Many glass pieces that contain color are made up of mostly clear glass, with a relatively small amount of color on the very inside of the piece. This colored glass is magnified by clear, giving the appearance of solid, colored glass in the piece. However, the Swedish Overlay technique takes one bubble of glass, with colored glass on the inside, sticks it onto a rather thick clear bubble, and wraps the colored bubble around the clear bubble.

In this piece, a Swedish Overlay with two colors was performed. This is useful because it puts the colored glass directly on the outside of the piece, with no clear glass on top of, or in between, the two colors. This means the two colors are directly interacting with each other and a 2200-degree furnace, used to reheat the glass. At these temperatures, the different elements, usually metals like iron or cobalt, used to give the glass its color can have extreme chemical reactions that produce new colors and dramatic textures.

The two colors used in this piece are a white glass and a black glass. However, the black used in this piece is made with silver, which is highly reactive. As this glass is manipulated aggressively and heated excessively, the layer of white glass turns yellow and the black layer of color, on the outside of the piece, literally rips open to reveal the “white” layer underneath. The final step in this process is to perform a reduction reaction by putting newspaper in the reheating furnace. The newspaper immediately combusts, consuming nearly all the available oxygen in the furnace. This causes the colored glass to react with the natural gas, used to power the reheating furnace, or “reduce”. This final reaction reduces the outermost surface of the piece, resulting in a change in color and a metallic finish.

Challenges Faced

The entirety of this project was essentially inspired by the summer I spent working at an existing glass studio. Last summer I was either working, or blowing glass, seven days a week at Wheaton Arts and Cultural Center in Millville, New Jersey. This was by far, the best summer of my entire life. It was also one of the most difficult and physically demanding experiences I've ever had. Temperatures outside would reach the 90's on a regular basis and standing next to a 2200-degree Fahrenheit reheating furnace for eight to twelve hours a day was essentially like being cooked. This may sound like a special kind of hell for many people, but I've never been happier. I spent the better part of three months at Wheaton, but I didn't truly realize why I loved being there so much, until I went through the process of this project.

Many of my days at Wheaton were spent sweeping floors, installing insulation, painting bathrooms, and moving countless heavy objects from one place to another, and then back again. Being an employee of a glass studio isn't what most people would consider "fun" in the traditional definition of the word. However, the sense of accomplishment that came from a day of physically exhausting work is indescribable. All the hard work also served a bigger purpose. I wasn't doing mindless computer work all day with nothing to show for it. There were real problems with the studio, every day, that I actually fixed. By the end of the summer I could walk around the studio and say "I put up that 100-yard long string of lights", "I painted the frames around those pictures", or "I caught that $20,000 piece of glass and safely put it into an annealer". Accumulating countless completed tasks may have diminishing returns, after a while, but making a difference in the lives of people you care about never gets old.

The biggest reason I was perfectly content with dripping sweat for eight hours straight, seven days a week, was the community of people at Wheaton. I

finally felt like I belonged to something bigger than myself. People of all ages and walks of life, either working or volunteering, came to the glass studio on a weekly basis. After no more than a week, they felt like a second family. Being part of such a positive community, gaining confidence from working with molten glass, and just getting so much exercise made all of my anxiety, insecurity, and depression completely disappear. One of the biggest challenges of this project was simply figuring out why my time at Wheaton was so important to me. This also brought up the challenge of finding scholarly articles that would support an experience I could barely put into words.

Unfortunately, not many articles have been written about the specific physical and emotional benefits of glassblowing. However, the field of Art Therapy is relatively well established, at this point, and much of the information about Art Therapy, in general, can be applied to different aspects of glassblowing. Working with hot glass is almost more of a dance than a traditional Art practice. Having to move with and respond to the material is surprisingly similar to dancing with a partner, albeit they may be a partner that insists on leading when they are supposed to follow. Rhythmic acts, like dancing, and physical movement are both cited as very beneficial for trauma survivors (Richman 372). Especially if the individual in question has had an immobilization response to their trauma (Perryman 84). While these articles were imperative for the completion of this project, reading them did have some unforeseen consequences.

Without question, I have had a very privileged life. I have very little to actually complain about and the few problems I do have, I am very lucky to have. That being said, I have had traumatic experiences that still affect me, from time to time. Immersing myself in literature about trauma and its effects even triggered some of these events, causing some of the very effects I had been reading about. This was not ideal. Wanting to physically and emotionally shut down when

attempting to complete a creative thesis, makes any kind of productive work rather difficult. Luckily, up until about two months ago, I could walk to a glass studio and surrender myself to a familiar, and comforting, process. Eventually, I learned how to separate my own feelings, and experiences, from the material and I was able to extract the information I needed.

The next biggest challenge in this process came when I was writing the process analysis statement, of my project. Specifically, the parts of the process statement that involved describing various glassblowing processes. One of the things I love the most about glass and glassblowing is how intuitive it becomes. Most of the time, I don't consciously think about what I'm doing or what I need to do next. I just do what needs to be done. This feeling of being completely in the moment is as close to pure bliss as I've ever felt. However, because I don't consciously know what I'm doing during every step of each process, I find it very difficult to describe each step in a way that others would understand. A movement that takes a fraction of a second to complete, that I don't think twice about, can take 500 words to effectively describe. Especially, when trying to communicate to someone who may have never actually seen glassblowing.

I did my best to clearly, and concisely, describe the different aspects of glassblowing in my process analysis statement. Mostly by just accepting that each of the processes will require a lot of explanation. However, in my opinion, the most effective way I counteracted this problem is through the Process Video, available on the "Shattered Glass Studio" YouTube channel. I anticipated the inability of words alone to effectively describe complex processes of glassblowing since the beginning of the project. I knew all along that the only way to truly get someone to understand the process, is for them to actually see it happen. This, of course, leads to the problem of getting someone to pay attention to a video that's an hour and half long.

Another one of my favorite parts about glassblowing is how quickly it can be done. A traditional oil painting could take over a decade of work to actually complete, but a master glassblower can make a simple vase in 90 seconds. This process naturally becomes longer with a more complicated piece, and a less skilled glassblower, but even a relatively large, and complex, piece of glass can be completed in a matter of hours. Even though an hour and a half is a relatively short amount of time for a piece of Art to be created, the average person only spends ten seconds looking at an individual piece in an Art museum. While I could watch glassblowing for hours on end, I imagine the average person would prefer something around three to five minutes. Because of this, sadly, I had to cut the process being displayed in the Process Video down from the glorious, original length, to just over five minutes. While not every single step of the process is shown, I believe the most essential steps are shown, and the video is suitably interesting.

Personal Impact

This was definitely a very personal, and relatively cathartic, project for me. I started making things and making Art to prove to myself that I am capable of putting something beautiful into the world. Glassblowing has become the most important form of expression in my life because of the inherently gratifying process, the beautiful objects that can be created, and the functionality of the pieces that glassblowers create. Being able to create a drinking glass, or glass bowl, and then using it on a daily basis is worth much more to me than just making something “pretty”. This greater sense of satisfaction has made me pursue glassblowing over every other type of craft I have tried.

I am so grateful because the pursuit of this craft has led me to actually being able to work in a well renown glass studio. While working at this studio I found a

community and sense of purpose that changed my life. When I started this project, my main goal was to devise a project that would allow me to blow glass as much as possible. But over the course of this project's completion, I realized why glassblowing is so important to me. The feeling of a successful piece coming off of a punti is what made me fall in love with glass in the first place, but the team building, and community mentality, of glass is what made me want to dedicate my life to the medium.

Throughout my life I have had to move houses quite a bit. Not as much as many people, but just enough to never really feel like one place has been "home". This has resulted in various negative effects on me, throughout the years, but working at Wheaton has really counteracted nearly all of them. The most important thing this project made me realize is how important that a sense of community, and support from good people, really is. Especially in the individualistic culture of the United States, I think we really need to reexamine our social requirements and the benefits that come from being a part of a real community.

Having a strong sense of support from others, and having a role in a community, is even more important when an individual is trying to cope with a traumatic experience of work through challenging emotions. The type of person that's likely to be naturally attracted to glassblowing may not feel like they really "fit in" anywhere else. This absence of a community can have very negative consequences on an individual's life, but when they finally find somewhere they can proudly call home, they can shine brighter than almost anyone. This is essentially why I think it's so important for a place like Shattered Glass Studio to exist. To provide a safe haven for the lost and the broken to become a part of something greater than themselves, in an organization dedicated to adding to the world and keeping the spark of creation alive.

Works Cited

Burke, Angela. "Catheters & Canvases--using Art Therapy in Palliative Care: Despite Proven Emotional, Psychological and Spiritual Benefits for Patients, Art Therapy is Still Not Widely Available in New Zealand Hospices." Kai Tiaki: Nursing New Zealand, vol. 22, no. 11, 2016, pp. 28.

Forgeard, Marie J C. “Perceiving Benefits after Adversity: The Relationship Between Self-Reported Posttraumatic Growth and Creativity.” Psychology of aesthetics, creativity, and the arts. 7.3 (2013): 245–264. Web.

Horowitz, Mardi J. “Effects of Trauma on Sense of Self.” Journal of loss & trauma. 20.2 (2015): 189–193. Web.

Perryman, Kristi, Paul Blisard, and Rochelle Moss. "Using Creative Arts in Trauma Therapy: The Neuroscience of Healing." Journal of Mental Health Counseling, vol. 41, no. 1, 2019, pp. 80-94.

Richman, Sophia. “Out of Darkness: Reverberations of Trauma and Its Creative Transformations.” Psychoanalytic dialogues 23.3 (2013): 362–376. Web.

Digital Supplements

Process Video - https://www.youtube.com/watch?v=9_kHRVdaokE&t=1s

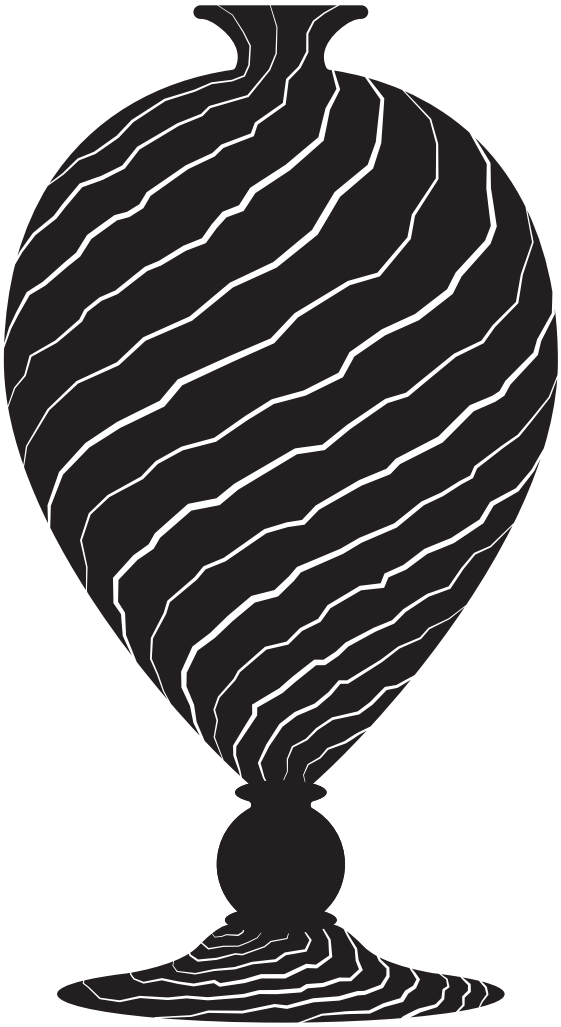
Guerrilla Marketing Video - https://www.youtube.com/watch?v=nR7FjSJ1Qas

Images

shattered

glass studio

Logo - Horizontal Lockup



shattered

glass studio

Logo - Vertical Lockup

Trade Show Pieces 1

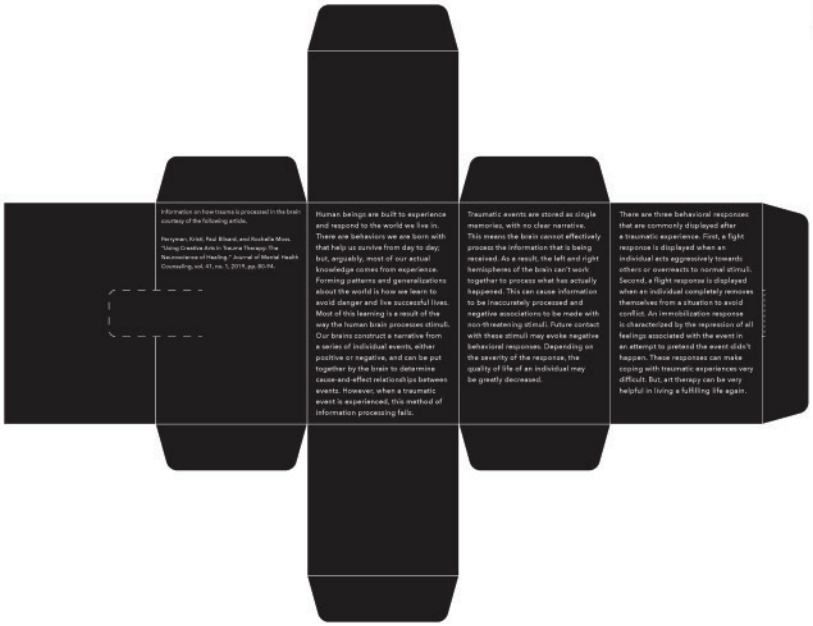
Trade Show Pieces 2

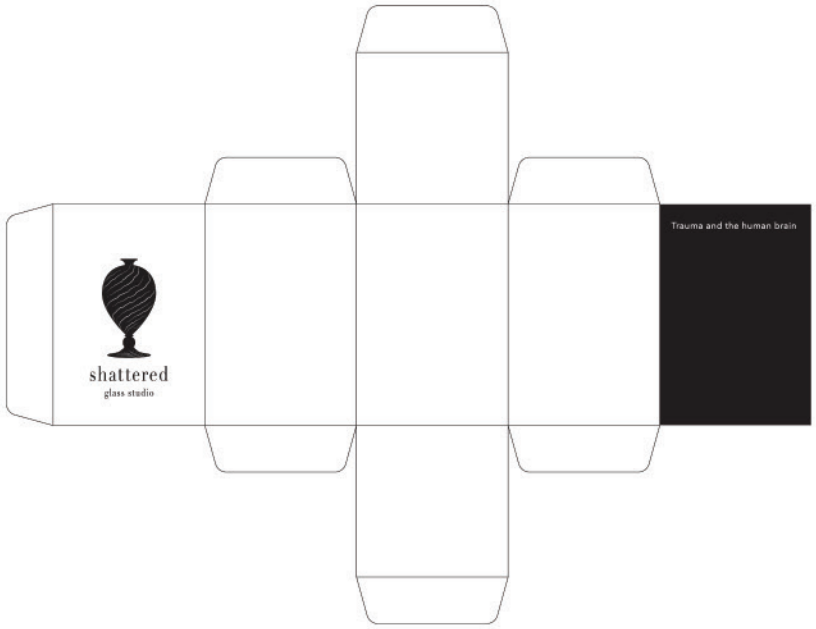
Trade Show Pieces 3

Packaging 1


Trauma and the human brain
and respond to the world we live in. There are behaviors we are born with that help us survive from day to day; but, arguably, most of our actual knowledge comes from experience. Forming patterns and generalizations about the world is how we learn to avoid danger and live successful lives. Most of this learning is a result of the way the human brain processes stimuli. Our brains construct a narrative from a series of individual events, either positive or negative, and can be put together by the brain to determine cause-and-effect relationships between events. However, when a traumatic event is experienced, this method of information processing fails.
emories, with no clear narrative. his means the brain cannot effectively rocess the information that is being eceived. As a result, the left and right hemispheres of the brain can't work together to process what has actually happened. This can cause information to be inaccurately processed and negative associations to be made with non-threatening stimuli. Future contact with these stimuli may evoke negative behavioral responses. Depending on the severity of the response, the quality of life of an individual may be greatly decreased.
There are three behavioral responses that are commonly displayed after a traumatic experience. First, a fight response is displayed when an individual acts aggressively towards others or overreacts to normal stimuli. Second, a flight response is displayed when an individual completely removes themselves from a situation to avoid conflict. An immobilization response is characterized by the repression of all feelings associated with the event in an attempt to pretend the event didn't happen. These responses can make coping with traumatic experiences very difficult. But, art therapy can be very helpful in living a fulfilling life again.

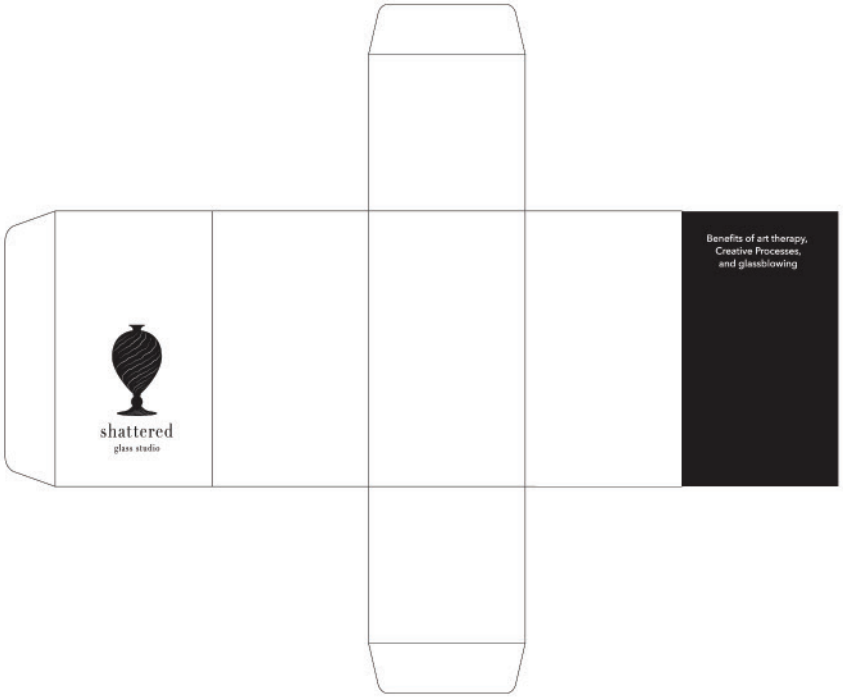
Packaging 2

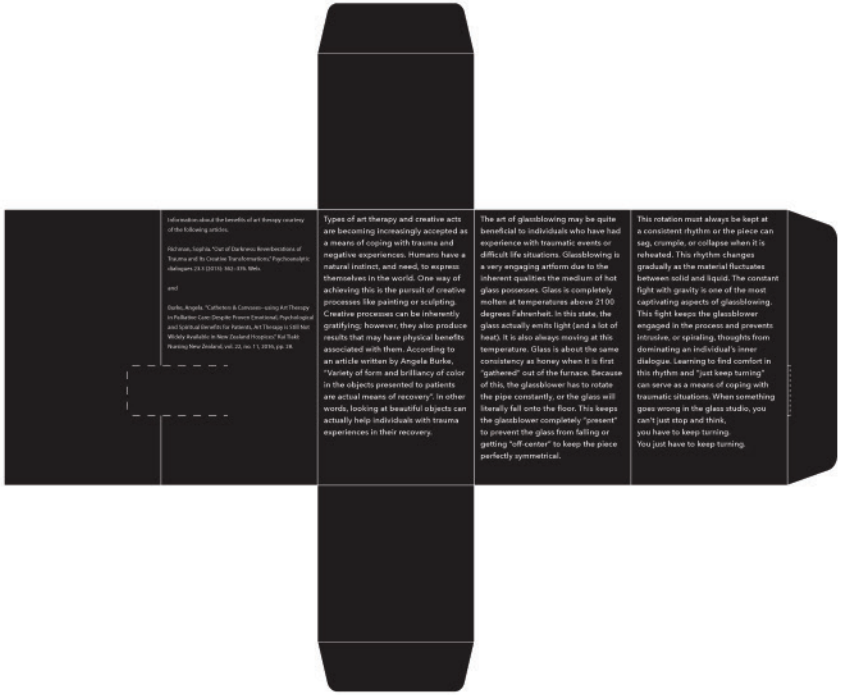




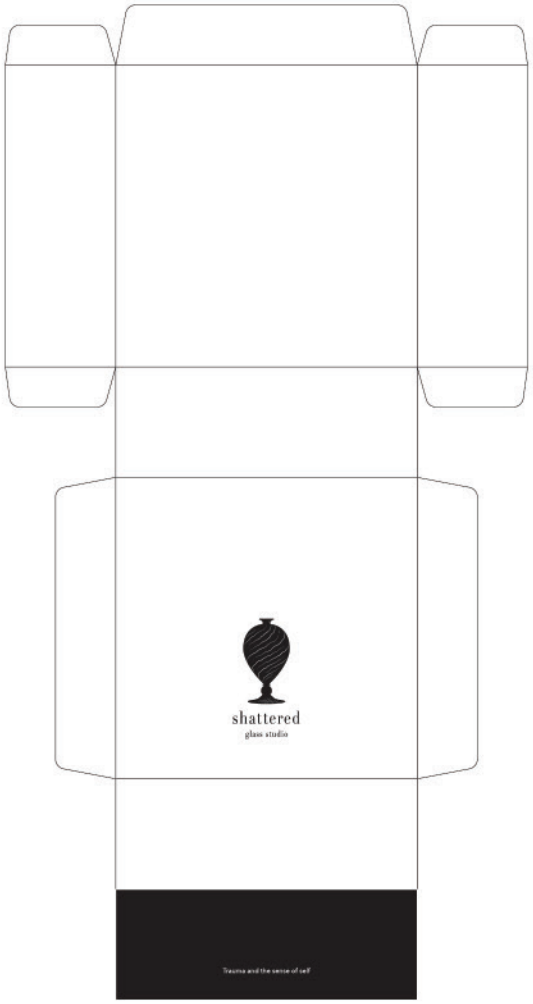
Clear Cup
3.25in. x 3.25in. x 4.75in. box when constructed

Small Cup Packaging

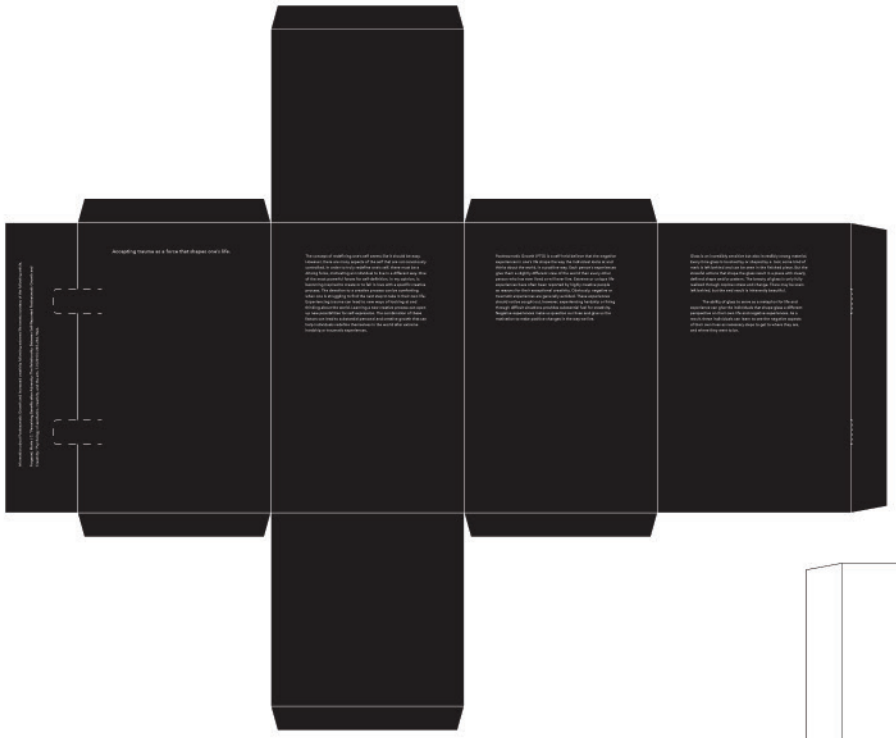


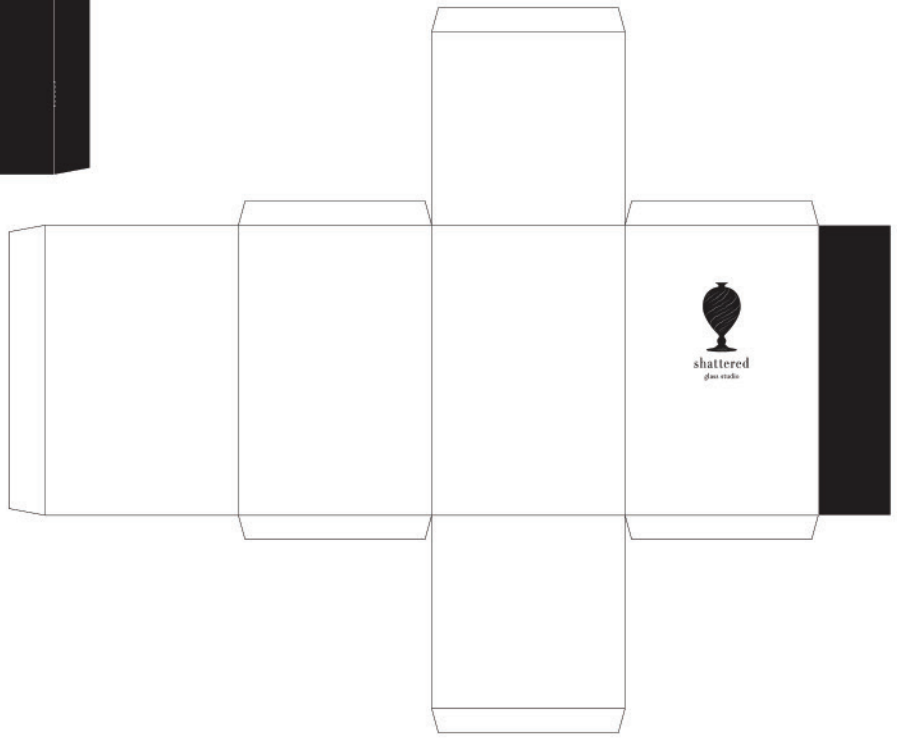


Crackle Cup
3.25in. x 3.25in. x 5.5in. box when constructed



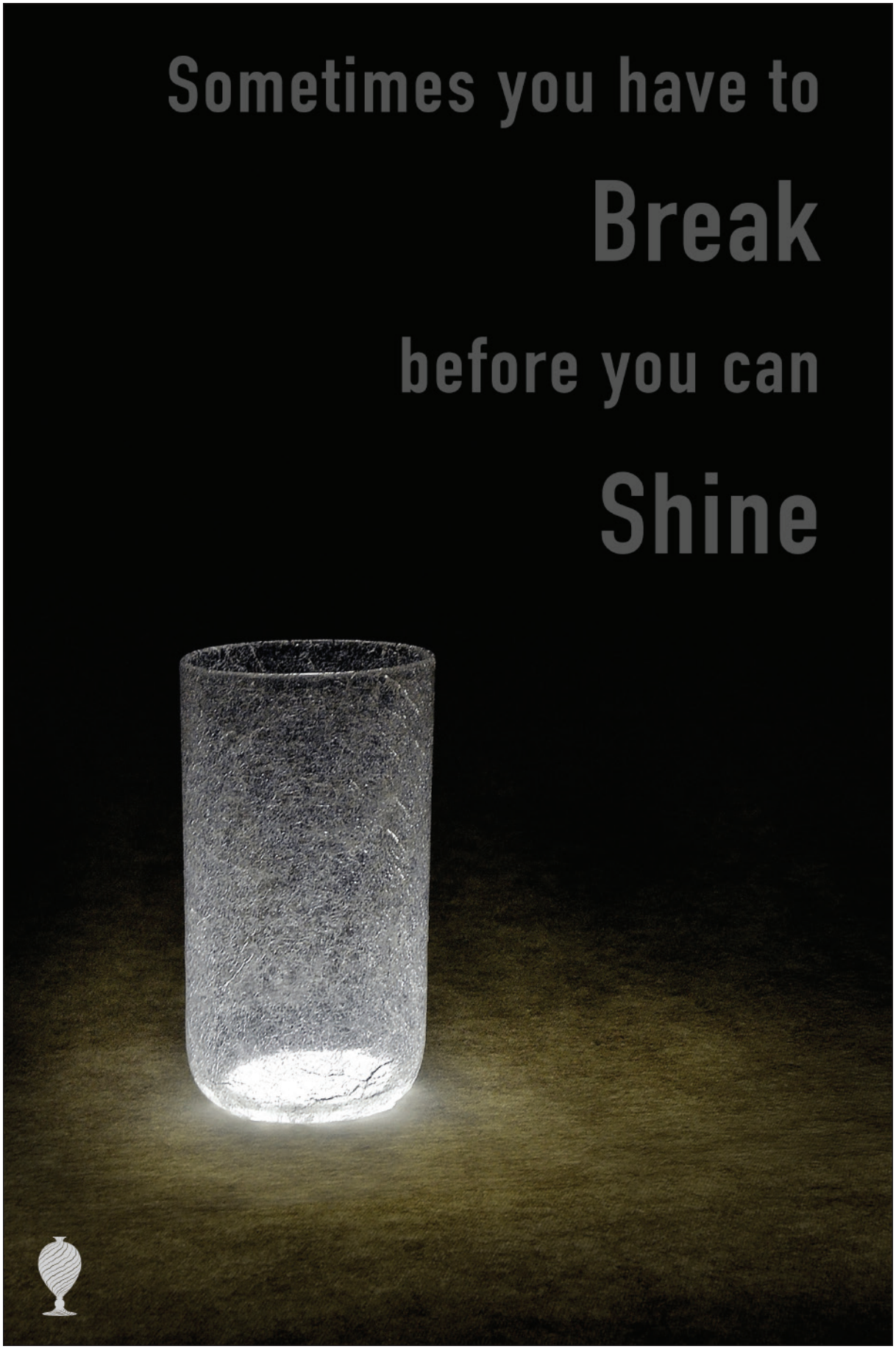
Spiral Bowl
7.5in. x 7.5in. x 2.75in. box when constructed





Lamp
8in. x 8in. x 12in. box when constructed

Lamp Packaging



Print Advertisement